

Amendments to the Claims

1. (Previously Presented): A semiconductor processing method, comprising:

forming an antireflective coating comprising Ge and Se over a substrate to be patterned;

forming photoresist over the antireflective coating, the photoresist being different from the antireflective coating;

exposing the photoresist to actinic radiation effective to pattern the photoresist to form photoresist patterns over the antireflective coating, the antireflective coating reducing reflection of actinic radiation during the exposing than would otherwise occur under identical conditions in the absence of the antireflective coating;

after the exposing, patterning the substrate through openings in the photoresist and the antireflective coating using the photoresist patterns and the antireflective coating as a mask; and

the openings in the photoresist and the antireflective coating being formed by solvent processing of the photoresist after the exposing to form the photoresist openings, followed by dry etching all of the antireflective coating exposed through the photoresist openings.

2. (Original): The method of claim 1 wherein the antireflective coating consists essentially of Ge and Se.

3. (Currently Amended): The method of claim 1 wherein the antireflective coating consists essentially of about 40 atomic ~~per cent~~ percent Ge and about 60 atomic percent Se.

4. (Original): The method of claim 1 wherein the antireflective coating is substantially amorphous.

5. (Original): The method of claim 1 wherein the antireflective coating comprises at least 30 atomic percent Ge.

6. (Original): The method of claim 1 wherein the antireflective coating comprises from 30 atomic percent to 50 atomic percent Ge.

7. (Original): The method of claim 1 wherein the antireflective coating comprises from 38 atomic percent to 42 atomic percent Ge.

8. (Original): The method of claim 1 wherein the photoresist contacts the antireflective coating.

9. (Original): The method of claim 1 wherein patterning the substrate comprises subtractive etching.

10. (Original): The method of claim 1 comprising after the patterning, removing substantially all the photoresist and antireflective coating layer from the substrate.

Claim 11 (Canceled).

12. (Previously Presented): The method of claim 1 wherein forming the openings in the antireflective coating comprises after said exposing, exposing the antireflective coating through the photoresist to radiation having a wavelength from about 190 nanometers to about 450 nanometers, and thereafter dry etching the antireflective coating in an oxygen comprising ambient.

13. (Previously Presented): A semiconductor processing method, comprising:

forming an antireflective coating comprising at least 30 atomic percent Ge and at least 50 atomic percent Se over a substrate to be patterned;

forming photoresist over the antireflective coating, the photoresist being different from the antireflective coating;

exposing the photoresist to actinic radiation effective to pattern the photoresist to form photoresist patterns over the antireflective coating, the antireflective coating reducing reflection of actinic radiation during the exposing than would otherwise occur under identical conditions in the absence of the antireflective coating;

after the exposing, patterning the substrate through openings in the photoresist and the antireflective coating using the photoresist patterns and the antireflective coating as a mask; and

the openings in the photoresist and the antireflective coating being formed by solvent processing of the photoresist after the exposing to form the photoresist openings, followed by dry etching all of the antireflective coating exposed through the photoresist openings.

Claim 14 (Canceled).

15. (Previously Presented): The method of claim 13 wherein the dry etching comprises exposure to oxygen at a temperature of at least 100°C.

16. (Previously Presented): The method of claim 13 wherein forming the openings in the antireflective coating comprises after said exposing, exposing the antireflective coating through the photoresist to radiation having a wavelength from about 190 nanometers to about 450 nanometers, and thereafter dry etching the antireflective coating in an oxygen comprising ambient.

17. (Original): The method of claim 16 wherein said exposing of the antireflective coating through the photoresist to radiation having a wavelength from about 190 nanometers to about 450 nanometers occurs prior to said solvent processing of the photoresist.

18. (Original): The method of claim 16 wherein said exposing of the antireflective coating through the photoresist to radiation having a wavelength from about 190 nanometers to about 450 nanometers occurs after said solvent processing of the photoresist.

19. (Previously Presented): The method of claim 13 wherein the dry etching comprises exposure to an NH_3 comprising plasma.

Claims 20 – 23 (Canceled).

24. (Original): The method of claim 13 wherein the antireflective coating consists essentially of Ge and Se.

25. (Original): The method of claim 13 wherein the antireflective coating is substantially amorphous.

26. (Original): The method of claim 13 wherein patterning the substrate comprises subtractive etching.

27. (Original): The method of claim 13 comprising after the patterning, removing substantially all the photoresist and antireflective coating layer from the substrate.

28. (Previously Presented): A semiconductor processing method, comprising:

forming a silicon nitride comprising layer over a substrate;

forming an antireflective coating comprising Ge and Se over the silicon nitride comprising layer;

forming photoresist over the antireflective coating, the photoresist being different from the antireflective coating;

exposing the photoresist to actinic radiation effective to pattern the photoresist to form photoresist patterns over the antireflective coating, the antireflective coating reducing reflection of actinic radiation during the exposing than would otherwise occur under identical conditions in the absence of the antireflective coating;

after the exposing, subtractively etching the silicon nitride comprising layer through openings in the photoresist and the antireflective coating using the photoresist patterns and the antireflective coating as a mask; and

the openings in the photoresist and the antireflective coating being formed by solvent processing of the photoresist after the exposing to form the photoresist openings, followed by dry etching all of the antireflective coating exposed through the photoresist openings.

29. (Original): The method of claim 28 comprising after the patterning, removing substantially all the photoresist and antireflective coating layer from the substrate.

30. (Original): The method of claim 28 wherein the antireflective coating consists essentially of Ge and Se.

31, (Original): The method of claim 28 wherein the antireflective coating comprises at least 30 atomic percent Ge.

32, (Original): The method of claim 28 wherein the antireflective coating comprises from 30 atomic percent to 50 atomic percent Ge.

33. (Original): The method of claim 38 wherein the antireflective coating comprises from 38 atomic percent to 42 atomic percent Ge.

Claim 34 (Canceled).

35. (Previously Presented): The method of claim 28 wherein forming the openings in the antireflective coating comprises after said exposing, exposing the antireflective coating through the photoresist to radiation having a wavelength from about 190 nanometers to about 450 nanometers, and thereafter dry etching the antireflective coating in an oxygen comprising ambient.

Claims 36-48 (Canceled).

49. (Previously Presented): The method of claim 1 wherein the antireflective coating has a total thickness which is less than that of the photoresist.

50. (Previously Presented): The method of claim 13 wherein the antireflective coating has a total thickness which is less than that of the photoresist.

51. (Previously Presented): The method of claim 28 wherein the antireflective coating has a total thickness which is less than that of the photoresist.